

Release Notes

HP StorageWorks HP-UX Kit for Enterprise Virtual Array

Product Version: 3.0E

Fifth Edition (July 2004)

Part Number: AV-RUHND-TE

This document contains the most recent product information about the HP StorageWorks HP-UX Kit V3.0E used for integrating host servers with the StorageWorks Enterprise Virtual Array (VCS version 3.020).

For the latest version of the HP-UX Release Notes and other documentation, access the HP storage web site at <http://www.hp.com/country/us/eng/prodserv/storage.html>.



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HP StorageWorks HP-UX Kit for Enterprise Virtual Array Release Notes
Fourth Edition (July 2004)
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Release Notes information

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Intended audience

This document is intended to assist customers who purchased the StorageWorks Enterprise Virtual Array and the associated StorageWorks Operating System kits. Other associated software packages are:

- StorageWorks Virtual Controller Software Package V3.020 for Dual HSV Controllers
- StorageWorks Snapshot for Virtual Controller Software V3.020 for Dual HSV Controllers

This document is also intended for use by HP Customer Service personnel responsible for installing and maintaining designated devices associated with this storage system.

Conventions

The following conventions are used throughout this document:

- Unless otherwise specified, all references to VCS V3.020 refer to the software package (kit) and documentation. These software packages and documentation support VCS V3.020.
- *The System Software for Enterprise Virtual Array* is the storage system software that contains Virtual Controller Software (VCS), Environmental Monitoring Unit (EMU) firmware, programmable component images, diagnostics, and message files. This storage system software is usually represented by a four-digit number like V3.020.
- Unless otherwise specified, all references to an HSV110 controller or an HSV110 controller pair should be interpreted as the HSV110 or HSV100 controller or controller pair.
- Unless otherwise specified, all references to the Enterprise Storage System or storage system should be interpreted as the EVA5000 or the EVA3000.
- Unless otherwise specified, all references to rack should be interpreted as the 9000-Series Enterprise Storage System Rack.
- Unless otherwise specified, all licensing references to host ID should be interpreted as the storage system world wide name (WWN).
- Unless otherwise specified, all references to the management appliance should be interpreted as the HP StorageWorks Management Appliance.
- Unless otherwise specified, all references to a single instance of a management agent should be interpreted as the HP StorageWorks Command View EVA.
- The term fabric means Fibre Channel Switched (FC-SW) connectivity.

New features

This section briefly describes new features and changes that are supported by the version 3.0E release of the platform kit.

New features for version 3.0E

The following are major enhancements included in the V3.0E release of the platform kit:

- EVA boot functionality provided with Secure Path 3.0d.
- VxVM Foundation Suite version 3.5 supported on HP-UX 11i v1.0.

Note: Dynamic multipathing support is not included.

- Support for VCS 3.020

Note: The *HP-UX for Enterprise Virtual Array Installation and Configuration Guide V3.0b* has not changed.

Enterprise Virtual Array storage system

This document contains the most recent product information about the Enterprise Virtual Array. An Enterprise Virtual Array storage system consists of the following:

- One pair of HSV110 controllers.
- An array of physical disk drives that the controller pair controls. The disk drives are located in drive enclosures that house the support systems for the disk drives.
- Associated physical, electrical, and environmental systems.
- Command View EVA, which is the graphical interface to the storage system. Command View EVA software resides on the management appliance and is accessed through a browser.
- Management appliance, switches, and cabling.
- At least one host attached through the fabric.

Enterprise Virtual Array system software

The HP StorageWorks Virtual Controller Software (VCS) V3.020 included in the software kit provides storage software capability for the HSV110 controller.

Enterprise Virtual Array documentation

The Enterprise *Virtual Array Catalog of Associated Documentation* is included on the HP Technical Documentation page. You can display a comprehensive list of Enterprise Virtual Array documentation as well as documentation for products that may be required to operate your storage system. To access the technical documentation, go to

<http://h18006.www1.hp.com/products/storageworks/enterprise/documentation.html>

Support release information

For future product support release information, visit

<http://h18006.www1.hp.com/storage/index.html>

This web site provides downloads for storage products.

Supported configurations

Refer to the *Enterprise Virtual Array Quick Specs* for supported configurations. The *HP StorageWorks SAN Design Reference Guide* is a detailed guide for SAN configurations and is available at

<http://h18004.www1.hp.com/products/storageworks/san/documentation.html>

Supported operating systems

The Enterprise Virtual Array storage system is compatible with the following operating systems:

- Tru64 UNIX
- Windows NT/Windows 2000/Windows Server 2003 (32- and 64-bit)
- OpenVMS
- Sun Solaris
- HP-UX
- IBM AIX
- Linux
- Novell NetWare

Table 1 lists the operating system's specifications.

Note: Table 1 contains current minimum level operating system specifications at the time of the Enterprise Virtual Array V3.020 release. Some component versions may change due to revision. For the latest information, go to <http://h18006.www1.hp.com/storage/index.html>

Table 1: Operating Systems Specifications

Platform	OS version		FCA (HBA)	Adapter firmware	Adapter driver
HP-UX	11.00	MC/ServiceGuard A.11.13, A.11.14 or later	A5158A 1GbPCI	Native	11.00.10
			A6685A 1GbHSC	Native	11.00.10
			A6795A 2GbPCI	Native	11.00.10
	11i v1.0	MC/ServiceGuard A.11.13, A.11.14, A.11.15 or later	A5158A 1GbPCI A9784A	Native	11.11.09
			A6685A 1GbHSC	Native	11.11.09
			A6795A 2GbPCI	Native	11.11.09
			A6826A	Native	11.11.0x
			A9782A	Native	11.11.09

Table 1: Operating Systems Specifications

Platform	OS version		FCA (HBA)	Adapter firmware	Adapter driver
			A9784A (2Gb)	Native	
	11i v2	MC/ServiceGuard A.11.15 or later	A6795A 2 GbPCI	Native	11.23.xx
			A9784A (2Gb)	Native	

Table 2 lists the minimum patch revisions.

Table 2: Patch Revisions

HP-UX version	Patch revisions (minimum)
11i v1.0	Hardware Enablement Bundle HWEnable 11iB.11.11.0312.4 PHKL_29985 (VxFS cumulative) PHKL_29826 – getmount_entry PHKL_27266 – (u)mount performance PHKL_28984 – Fibre channel Mass Storage Patch PHKL_28695 VM Patch PHKL_28238 Early KRS PHKL_27321 Early KRS PHKL_28569 WSIO Patch PHKL_29047 SCSI IO Cumulative Patch PHKL_30218 Dump Patch2 for EVA support PHKL_30219 Dump Patch1 for EVA support PHKL_30622LVM cumulative Patch PHCO_29495 libc cumulative patch PHCO_29905 mount(1M) cumulative PHCO_27957 umount(1M) cumulative PHCO_27958 mountall cumulative PHCO_27959 umountall(1M)cumulative PHCO_28651 VxVM Enterprise Administrator Srv Patch PHCO_28656 VxVM Enterprise Administrator Patch
11i v2.0	N/A

Table 3 lists the latest Enterprise Virtual Array firmware code used in this release of the HP-UX Solution Software for Enterprise Virtual Array.

Table 3: Firmware Revisions

HP-UX operating system	Enterprise Virtual Array VCS code
11.00	3.020
11i v1.0	3.020
11i v2	3.020

Switch support

This kit supports the Fibre Channel switches and firmware versions listed in the *HP StorageWorks SAN Design Reference Guide* at

<http://h18000.www1.hp.com/products/storageworks/san/documentation.html>

Note: HP recommends that you do not mix switch firmware versions in your SAN. It is considered a best practice to uniformly upgrade all switches in the SAN.

Multiple path support

HP-UX with EVA storage requires the installation of StorageWorks Secure Path on each host to achieve high availability multiple path capability. Secure Path is licensed on a per-host basis. Refer to the HP StorageWorks Enterprise Virtual Array 5000 specifications page for Secure Path versions at

<http://h18006.www1.hp.com/products/storageworks/enterprise/specifications.html>

Single path support

HP-UX servers require a single FCA to support single path mode.

Note: Single path mode should not be used in mission critical environments.

Supported HP-UX servers

Table 4 lists the Enterprise Virtual Array compatible HP-UX server models.

Note: Veritas Volume Manager for HP-UX is not supported in Enterprise Virtual Array V3.020.

Table 4: Supported HP-UX servers

PA Risc	• rp24xx		
	• B2600		
	• C3700	• C3750	
	• J6750		
	• Kx60	• Kx70	• Kx80
	• rp54xx		
	• rp74xx	• rp8400	
	• V2200	• V2250	• V2500
	• V2600		
Itanium	• SD16000	• SD32000	• SD64000
	• rx5670	• rx2600	• zx2000
	• zx6000		
	• rx4640		
	• rx7620		
	• rx8620		
	• SD Integrity		

Operating constraints

Any operating constraints specific to the Enterprise Virtual Array hardware and Command View EVA can be found in their respective release notes.

Failover/failback

Failback preference settings for the HSV controllers are specific to the operating system. Refer to the Enterprise Virtual Array hardware release notes for details.

Avoiding problem situations

The following sections describe problems that may arise during platform kit operation and their solutions.

Command View EVA

The Command View EVA release notes contain information on problems pertaining to Command View EVA.

Enterprise Virtual Array version 3.020 hardware

The hardware release notes in your VCS kit contain information on problems pertaining to Enterprise Virtual Array hardware.

Secure Path version

The Enterprise Virtual Array with VCS V3.020 requires the latest version of Secure Path for your operating system. Refer to the HP StorageWorks Enterprise Virtual Array 5000 specifications page to ensure that you have the current version of Secure Path for your operating system. The HP StorageWorks Enterprise Virtual Array 5000 specifications page can be accessed at

<http://h18006.www1.hp.com/products/storageworks/enterprise/specifications.html>

Codelead usage

When a maximum configured system is running at maximum load, codelead functionality is not effective due to Secure Path timing constraints. The system may time-out before codelead is complete. Because of this behavior, VCS upgrades should be done during off peak usage.

Avoiding problem situations with the SSSU

Changing comments on a disk enclosure

You cannot use the SSSU to change comments on a disk enclosure. Use Command View EVA to change comments on a disk enclosure. If you try to change a disk enclosure comment in the SSSU, the following error message appears:

```
Error: Invalid Operation
```

Changing the name of a disk enclosure

Changing the name of a disk enclosure is not supported with the SSSU or with Command View EVA. If you try to change a disk enclosure name in the SSSU, the following error message appears:

```
Error: Invalid Operation
```

Logical Volume Manager

- When creating snapshots or clones of a device that is managed by LVM, care must be taken to avoid misconfiguring LVM. After creating a snapshot or clone of a physical volume, always run `vgchgid(1M)` in order to break the association between the volume group and the snapshot or clone. Otherwise, snapshots or clones appear to LVM to be an

alternate path to the original physical volume. This misconfiguration could lead to data corruption if the snapshot or clone is later added to the volume group by using `vgextent(1M)`, `vgimport(1M)`, or `vgscan(1M)`.

- When a path to a device managed by LVM becomes unavailable because of a controller, path link, switch, or HBA failure, I/O requests can be delayed up to one minute immediately after the failure.

As a result, the responsiveness of mirrored logical volumes may be briefly affected. When a physical volume becomes unavailable, applications may normally experience a delay while an I/O request to that physical volume times out.

By default, this delay takes 30 seconds, but the time-out can be changed using the `pvchange(1M)` command. For a read, LVM selects another mirror and tries to request I/O again. For a write, LVM records the error and continues, as long as the data has been written to at least one mirror.

In either case, with Secure Path installed, this initial time-out may take up to one minute longer. After initial time-out, LVM remembers that the physical volume is unavailable and future I/O requests will *not* suffer this delay.

Overloaded Enterprise Virtual Array configurations

Under conditions where multiple servers are overloading an Enterprise Virtual Array, the boot or reboot of one of the servers may time-out. If the combined delayed access to Enterprise Virtual Array LUNs takes more than 10 minutes, the boot will not complete. To avoid this situation, restart the boot process and reduce the load to the array.

IMPORTANT: Persistent occurrence of this issue may indicate an overloaded configuration and additional array host port resources may be required to match the configuration to the actual workload. Consult your local HP account or service representative for help to properly configure the Enterprise Virtual Array for your newly designed or existing configuration.

High availability environment recommendations

In high availability environments, under heavy I/O loads, you may experience I/O time-out conditions. If I/O time-outs occur, HP recommends that you increase the *IO_timeout value* with the `pvchange` command from a default of 30 seconds to no more than 60 seconds for LUNs (virtual disks) on version 3.020 of the Enterprise Virtual Array. Under heavy I/O load conditions, the increased *IO_timeout* value allows for longer I/O completion times and for LUN access delays if a controller failover condition occurs.

Note: Ensure that you have HP MC/ServiceGuard configured properly. Refer to your HP MC/ServiceGuard documentation for configuration information or go to the HP web site at <http://docs.hp.com/hpux/ha/index.html#ServiceGuard>.

Selecting the management appliance

The drop-down menu for selecting the appliance or cells does not work in all cases. To avoid this situation, use the following command to access the graphical user interface for the SSSU:

```
# gssu
```

In the command text box, enter the SSSU command you want to perform. For example:

```
select manager ip_address username=xxxx password=xxxx
```

Enterprise Storage System notes

Cable requirements

When an Enterprise Virtual Array is connected to a 1Gb switch, an SC-to-LC cable is required for host connectivity. [Table 5](#) and [Table 6](#) list the available cables.

Table 5: LC-SC cables

Length	Description	HP part number
2.0 m ± 40 mm	CA ASSY, LC-SC, Optical 2M	187891-002
5.0 m ± 80 mm	CA ASSY, LC-SC, Optical 5M	187891-005
15.0 m ± 150 mm	CA ASSY, LC-SC, Optical 15M	187891-015
30.0 m ± 300 mm	CA-ASSY, LC-SC, Optical 30M	187891-030
50.0 m ± 500 mm	CA-ASSY, LC-SC, Optical 50M	187891-050

Table 6: LC-LC cables

Length	Description	HP part number
2.0 m ± 40 mm	2-meter LC-LC Multi-Mode Fibre Cable	221692-B21
5.0 m ± 80 mm	5-meter LC-LC Multi-Mode Fibre Cable	221692-B22
15.0 m ± 150 mm	15-meter LC-LC Multi-Mode Fibre Cable	221692-B23
30.0 m ± 300 mm	30-meter LC-LC Multi-Mode Fibre Cable	221692-B26
50.0 m ± 500 mm	50-meter LC-LC Multi-Mode Fibre Cable	221692-B27

Storage System Scripting Utility for Enterprise Virtual Array

Refer to the *Command View EVA Release Notes* prior to using the Storage System Scripting Utility (SSSU), as SSSU communicates directly with the Command View EVA.